

Claims

1-29 Canceled

30. (New) An electronic control unit (14) connected to a hydraulic unit (13) via a magnetic plug, in a motor vehicle brake system, comprising:
 - a zone formed of housing walls (14') for accommodating two or more valve coils (12) arranged in the zone;
 - a housing cover (8, 35);
 - at least one first printed circuit board (31, 5) for accommodating of electronic components and an electrical contact; and
 - a first heat-conducting plate (9, 32) for dissipating of heat of the electronic components, wherein the first heat-conducting plate is planarly connected to the first printed circuit board, and at least one thermal connecting element (4, 15) is provided, which constitutes a thermal bridge between the first printed circuit board(s) and the first heat-conducting plate(s).
31. (New) An electronic control unit according to claim 30, wherein at least one valve coil of the two or more valve coils is connected to an additional printed circuit board (5) or an additional heat-conducting plate (32).
32. (New) An electronic control unit according to claim 31, wherein thermal connecting elements (4, 15) are used to provide an electrical connection between the first printed circuit board and the additional printed circuit board.
33. (New) An electronic control unit according to claim 31, wherein at least one valve coil of the two or more valve coils is mechanically elastically attached to the additional heat-conducting plate.

34. (New) An electronic control unit according to claim 31, wherein the additional printed circuit board (5) is used for electrical connection of the two or more valve coils.
35. (New) An electronic control unit according to claim 30, wherein at least one of the two or more valve coils is connected mechanically to the first heat-conducting plate (9).
36. (New) An electronic control unit according to claim 30, wherein the first heat-conducting plate is welded to at least one of the cover and the housing (14).
37. (New) An electronic control unit according to claim 30, wherein the coil housings have a honeycomb structure.
38. (New) An electronic control unit according to claim 30, wherein the controller housing is connected to a hydraulic valve block (13), and the controller wall (14') is sealed by means of a circumferential groove (58) provided in the valve block, in particular with at least two chambers (47), and a molecular bond is established by way of the groove after joining of the electronic control unit and the valve block.
39. (New) An electronic control unit according to claim 30, wherein the cover (8) has recesses through which a metal part used for cooling exits to the outside.
40. (New) An electronic control unit according to claim 30, wherein the cover (35) is made of metal.
41. (New) An electronic control unit according to claim 30, wherein metal pins (66) are employed for cooling integrated electronic power components, which are thermally

connected to the heat-conducting plate.

42. (New) An electronic control unit according to claim 30, wherein additional boards (36) are provided, which are electrically connected to the first printed circuit board.
43. (New) An electronic control unit according to claim 30, wherein a pressed frame is provided, which is mounted to contact the coils, with the pressed frame being mechanically connected to the housing in a tight manner, and with the pressed frame including press-in contact pins which establish an electrical connection with the printed circuit board, while the coils are elastically held.
44. (New) An electronic control unit according to claim 30, wherein a pressed screen (37) is provided, which is mounted to contact the coils, with the pressed screen being mechanically connected to the housing in a tight manner, and with the pressed screen including press-in contact pins which establish an electrical connection with the printed circuit board, while the coils are elastically held.
45. (New) An electronic control unit according to claim 30, wherein an additional heat-conducting plate is connected in molecular bond, operatively or positively to the cover (8, 35), which latter is thermally connected to at least one of the first printed circuit board and the first heat-conducting plate (9) by way of a heat contact element (41, 42).
46. (New) An electronic control unit according to claim 30, wherein an aluminum plate (31) which ensures thermal connection of the heat-conducting plate is cemented to the first heat-conducting plate (9).
47. (New) An electronic control unit according to claim 30, wherein the cover (35) is

attached to the housing wall (14') by way of a molecular bond which comprises two troughs (47).

48. (New) An electronic control unit according to claim 30, wherein an additional board (51) is electrically and mechanically connected to the first printed circuit board by at least one contact element (52), with the at least one contact element being connected by a press-in contact (53) on one side and by a SMD contact (54) on the other side.
49. (New) A pump driving unit for an electronic control unit which is connected a hydraulic unit (HCU), the pump driving unit comprising:
 - an electric motor driving a driving axle; and
 - a motor base plate (22) accommodating electronic power components of the motor, wherein the motor base plate is in thermal contact with the hydraulic block (HCU) via a deformable heat-conducting element (21), and the hydraulic block comprises a zone formed of housing walls (14') for accommodating two or more valve coils (12) arranged in the zone;
 - a housing cover (8, 35);
 - at least one first printed circuit board (31, 5) for accommodating of electronic components and an electrical contact; and
 - a first heat-conducting plate (9, 32) for dissipating of heat of the electronic components.
50. (New) A pump driving unit according to claim 49, wherein a rod-shaped motor plug is adapted to be plugged into the motor base plate or into a bushing (25) arranged thereon in order to provide an electrically conductive connection.

51. (New) A method of manufacturing an electronic control unit comprising:

providing a frame made up of housing walls (14') that defines a coil accommodation zone;

inserting a printed circuit board assembly (31, 9, 3) in a zone predetermined by the frame, and elements (56) are provided to fix the printed circuit plate assembly to the frame; and

mounting a cover (8) onto the printed circuit board assembly, wherein the cover comprises holding elements (57) which fix the printed circuit board assembly when the cover is mounted.

52. (New) A method according to claim 51, wherein the cover is connected to the housing using a friction welding method.

53. (New) An electrohydraulic control device comprising:

a mounting frame for mounting one or more electric valve coils (12) thereon, wherein the mounting frame is substantially made of plastics;

a strip conductor carrier having at least one semiconductor element producing thermal energy and at least one planar cooling element (9);

a hydraulic block connected to the mounting frame and having valve domes of magnetically drivable hydraulic valves that project from a surface of the hydraulic block, wherein the hydraulic valves being arranged inside the hydraulic block; and

one or more elongated heat-conducting element (172) is provided in contact with the hydraulic block (13) and to the cooling element (9) to form a thermal bridge so that a heat flow is enabled between hydraulic block and cooling element, wherein a longitudinal side of the one or more heat-conducting element (172) is operatively or positively connected to the hydraulic block or the cooling element (9), and an

opposed longitudinal side (1712) bear against the hydraulic block or the cooling element without the operative connection in a detachable manner.

54. (New) An electrohydraulic control device according to claim 53, wherein the mounting frame is operatively connected to the hydraulic block and the cooling element using a bolt that extends through the heat-conducting element or a screw (1713).
55. (New) An electrohydraulic control device according to claim 53, wherein displaceable valve coils (12) encompassed by the mounting frame are provided, which enclose the valve domes and are displaceable in an axial direction, i.e. in a direction of the longitudinal axes of the valve domes, and elastomeric members (176) are disposed in an area between an abutment surface of the mounting frame for the valve coils, the elastomeric members are compressed by axial displacement of the valve coils when the mounting frame and the hydraulic block are joined, and planar holding elements are provided between the elastomeric members and the valve coils being so configured that, in the condition not compressed by the valve coils, drop-out of the coils from the mounting frame is prevented by an abutment surface (1720), with the planar holding elements bearing against the abutment surfaces only in the mentioned uncompressed condition.
56. (New) An electrohydraulic control device according to claim 53, wherein a friction-welded cover (8) closes the accommodation of the electronics of the controller (14).
57. (New) An electrohydraulic control device according to claim 53, wherein the one or more elongated heat-conducting elements is attached to the planar cooling element by a wedging operation.